

WHAT IS CLAIMED IS:

[c1] 1. A composition, comprising a polyorganosiloxane and an admixed sterically hindered amine light stabilizer (HALS) wherein the polyorganosiloxane is free from alternating cyclic hydrocarbon residues.

[c2] 2. The composition of claim 1, wherein said polyorganosiloxane comprises moieties of the formula $[(CH_3)_2SiO]$ and a terminal trimethylsiloxane unit $[(CH_3)_3SiO_{0.5}]$.

[c3] 3. The composition of claim 1, wherein said polyorganosiloxane comprises $[(CH_3)_3SiO_{0.5}]$ units in a range between about 0.7 mol% and about 6.0 mol%.

[c4] 4. The composition of claim 1, wherein said polyorganosiloxane comprises $[(CH_3)_3SiO_{0.5}]$ units in a range between about 2.0 mol% and about 5.5 mol%.

[c5] 5. The composition of claim 1, wherein said polyorganosiloxane comprises $[(CH_3)_3SiO_{0.5}]$ units in a range between about 2.5 mol% and about 5 mol%.

[c6] 6. The composition of claim 1, wherein said polyorganosiloxane is a reaction product of a non-cyclic, vinylsiloxane fluid and an organohydrogensiloxane crosslinker.

[c7] 7. The composition of claim 6, wherein said polyorganosiloxane is a reaction product of a non-cyclic, vinylsiloxane fluid and an organohydrogensiloxane crosslinker in a ratio to provide SiH in a range between about 0.2 moles and about 5.0 moles per mole of vinyl-siloxane functionality.

[c8] 8. The composition of claim 6, wherein said polyorganosiloxane is a reaction product of a non-cyclic, vinylsiloxane fluid and an organohydrogensiloxane crosslinker in a ratio to provide SiH in a range between about 0.75 moles and about 2.5 moles per mole of vinyl-siloxane functionality.

[c9] 9. The composition of claim 6, wherein said polyorganosiloxane is a reaction product of a non-cyclic, vinylsiloxane fluid and an organohydrogensiloxane crosslinker in a ratio to provide SiH in a range between about 1.0 moles and about 1.5 moles per mole of vinyl-siloxane functionality.

[c10] 10. The composition of claim 1, wherein said polyorganosiloxane is a reaction product of a curable composition comprising a non-cyclic, vinylsiloxane fluid, an organohydrogensiloxane crosslinker and a filler in a range between about 5 and about 100 parts by weight based on 100 parts by weight of the vinylsiloxane fluid.

[c11] 11. The composition of claim 10, wherein said filler is selected from fumed silica, precipitated silica and mixtures thereof.

[c12] 12. The composition of claim 10, wherein said curable composition comprises less than 50 parts by weight of filler per 100 parts by weight of the vinylsiloxane fluid.

[c13] 13. The composition of claim 10, wherein said curable composition comprises an extending or reinforcing filler selected from the group consisting of titanium dioxide, lithopone, zinc oxide, zirconium silicate, silica aerogel, iron oxide, diatomaceous earth, calcium carbonate, silazane treated silicas, glass fiber, magnesium oxide, chromic oxide, zirconium oxide, aluminum oxide, alpha quartz, calcined clay, carbon, graphite, and synthetic fiber.

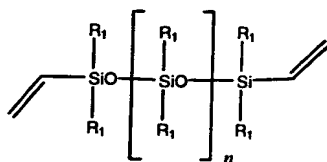
[c14] 14. The composition of claim 10, wherein said polyorganosiloxane is a reaction product of a non-cyclic, vinylsiloxane fluid and an organohydrogensiloxane crosslinker cured in the presence of a platinum catalyst to form an elastomeric material.

[c15] 15. The composition of claim 10, wherein said vinylsiloxane fluid comprises vinylsiloxoxy units in a range between about 0.05 mol% and about 3.5 mol% based on the total moles of condensed organosiloxoxy units in the vinylsiloxane.

[c16] 16. The composition of claim 10, wherein said vinylsiloxane fluid comprises vinylsiloxyl units in a range between about 0.1 mol% and about 3 mol% based on the total moles of condensed organosiloxyl units in the vinylsiloxane.

[c17] 17. The composition of claim 10 wherein said vinylsiloxane fluid comprises vinylsiloxyl units in a range between about 0.14 mol% and about 2 mol% based on the total moles of condensed organosiloxyl units in the vinylsiloxane.

[c18] 18. The composition of claim 10, wherein said vinylsiloxane fluid comprises:



where n is a positive integer of a value to provide a viscosity in a range between about 100 centipoise and about 200,000 centipoise at 25°C, and each R₁ is a monovalent hydrocarbon radical selected from the group consisting of alkyl radicals, aryl radicals, aralkyl radicals, alkenyl radicals, halogenated derivatives of said radicals, and cyanoalkyl radicals.

[c19] 19. The composition of claim 18, wherein said R₁ is an alkyl radical having carbon atoms in a range between 1 and 8.

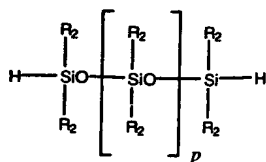
[c20] 20. The composition of claim 10, wherein said organohydrogensiloxane crosslinker comprises chemically combined hydrogen attached to silicon in a range between about 0.2 moles and about 5.0 moles per mole of vinyl-siloxane functionality.

[c21] 21. The composition of claim 10, wherein said organohydrogensiloxane crosslinker comprises chemically combined hydrogen attached to silicon in a range between about 0.75 moles and about 2.5 moles per mole of vinyl-siloxane functionality.

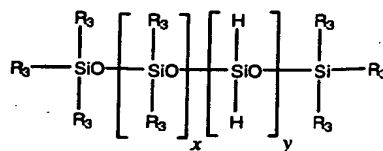
[c22] 22. The composition of claim 10, wherein said organohydrogensiloxane crosslinker comprises chemically combined hydrogen attached to silicon in a range between about 1.0 moles and about 1.5 moles per mole of vinyl-siloxane functionality.

[c23] 23. The composition of claim 10, wherein said organohydrogensiloxane crosslinker comprises:

(2) or (3):



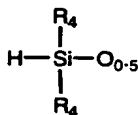
(2)



(3)

where p is a positive integer of a value to provide a viscosity in a range between about 1 centipoise and about 1,000 centipoise at 25°C, x and y are positive integers of sufficient value to provide a viscosity in a range between about 1 centipoise and about 1,000 centipoise at 25°C, and wherein R₂ and R₃ represent the same or different monovalent hydrocarbon radicals free of olefinic unsaturation and selected from the group consisting of an alkyl radical, aryl radical, aralkyl radical, halogenated derivative of said radicals and a cyanoalkyl radical.

[c24] 24. The composition of claim 10, wherein said organohydrogensiloxane crosslinker comprises the units:



[c25] 25. The composition of claim 24, wherein said alkyl radical comprises carbon atoms in a range between 1 and 13.

CN(C)(C)C1CCC(CC1)OCC[Si](C)(C)O[Si](C)(C)O[Si](C)(C)O

[c27] 27. The composition of claim 26, wherein the methylsiloxane moiety forms a cyclic ring.

[c29] 29. The composition of claim 26, wherein the methylsiloxane moiety forms a linear chain with trimethylsiloxane end groups.

[c30] 30. The composition of claim 1, comprising said hindered amine light stabilizer in a range between about 0.05 weight % and about 10 weight %.

[c31] 31. The composition of claim 1, comprising said hindered amine light stabilizer in a range between about 0.1 weight % and about 5 weight %.

[c32] 32. The composition of claim 1, comprising said hindered amine light stabilizer in a range between about 0.25 weight% and about 1 weight%.

[c33] 33. A method of stabilizing a polyorganosiloxane composition, comprising providing a polyorganosiloxane and admixing a hindered amine light stabilizer into said polyorganosiloxane.

[c34] 34. The method of claim 33, wherein said hindered amine light stabilizer is admixed with said polyorganosiloxane prior to curing to form said composition.

[c35] 35. The method of claim 33, wherein said hindered amine light stabilizer is admixed with said polyorganosiloxane subsequent to curing to form said composition.

[c36] 36. The method of claim 33, wherein said hindered amine light stabilizer is admixed with said polyorganosiloxane subsequent to curing to form said composition by dispersing said hindered amine light stabilizer in a solvent and swelling said polyorganosiloxane with said solvent containing dispersed hindered amine light stabilizer.

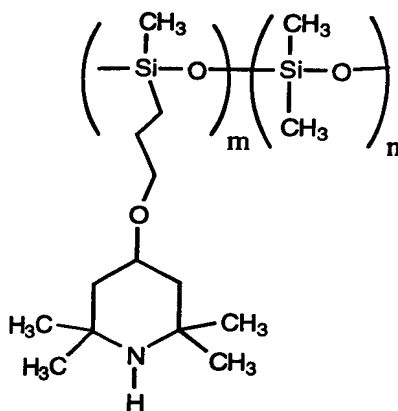
[c37] 37. The method of claim 33 additionally comprising reacting a non-cyclic hydrocarbon, vinyl-containing organosiloxane fluid and an organohydrogensiloxane crosslinker to produce said polyorganosiloxane.

[c38] 38. The method of claim 33, wherein said organohydrogensiloxane crosslinker is employed in an amount to provide SiH in a range between about 0.2 moles and about 5.0 moles per mole of vinyl-siloxane functionality.

39
[c39] 39. The method of claim 33 additionally comprising reacting a non-cyclic hydrocarbon, vinyl-containing organosiloxane fluid and an organohydrogensiloxane crosslinker in the presence of a Platinum catalyst to produce said polyorganosiloxane.

[c40] 40. The method of claim 33 additionally comprising reacting a non-cyclic hydrocarbon, vinyl-containing organosiloxane fluid and an organohydrogensiloxane crosslinker in the presence of a Platinum catalyst at a temperature in a range between about 80°C and about 250°C to produce said polyorganosiloxane.

[c41] 41. The method of claim 33, wherein said hindered amine light stabilizer is represented by the formula



where n is 0 or any integer, and m represents an integer greater than 3.

[c42] 42. The method of claim 41, wherein the methylsiloxane moiety forms a cyclic ring.

[c43] 43. The method of claim 42, wherein the methylsiloxane moiety forms a cyclic tetramer where m=4 and n=0 or forms an octamer where m=8 and n=0.

[c44] 44. The method of claim 41, wherein the methylsiloxane moiety forms a linear chain with trimethylsiloxane end groups.

[c45] 45. A light bulb, comprising an enclosure and a coating for said enclosure, said coating comprising a polyorganosiloxane composition containing a hindered amine light stabilizer.

[c46] 46. The bulb of claim 45, wherein said coating is applied to an exterior of said enclosure.

[c47] 47. The bulb of claim 45, wherein said coating is in a range between about 0.001 inches and about 0.030 inches thick.

[c48] 48. The bulb of claim 45, wherein said coating is in a range between about 0.010 inches and about 0.020 inches thick.

[c49] 49. The bulb of claim 45, wherein said coating is in a range between about 0.012 inches and about 0.018 inches thick.

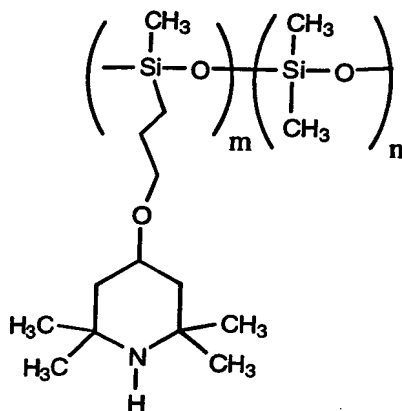
[c50] 50. The bulb of claim 45, wherein said coating comprises said hindered amine light stabilizer in a range between about 0.05 weight % and about 10 weight %.

[c51] 51. The bulb of claim 45, wherein said coating comprises said hindered amine light stabilizer in a range between about 0.1 weight % and about 5 weight %.

[c52] 52. The bulb of claim 45, wherein said coating comprises said hindered amine light stabilizer in a range between about 0.25 weight % and about 1 weight %.

[c53] 53. The bulb of claim 45, comprising a member selected from an incandescent bulb, a tungsten-halogen bulb and an arc discharge bulb.

[c54] 54. The bulb of claim 45, wherein said hindered amine light stabilizer is represented by the formula



where n is 0 or any integer, and m represents an integer greater than 3.

[c55] 55. The bulb of claim 54, wherein the methylsiloxane moiety forms a cyclic ring.

[c56] 56. The bulb of claim 55, wherein the methylsiloxane moiety forms a cyclic tetramer where $m=4$ and $n=0$ or forms an octamer where $m=8$ and $n=0$.

[c57] 57. The bulb of claim 54, wherein the methylsiloxane moiety forms a linear chain with trimethylsiloxane end groups.

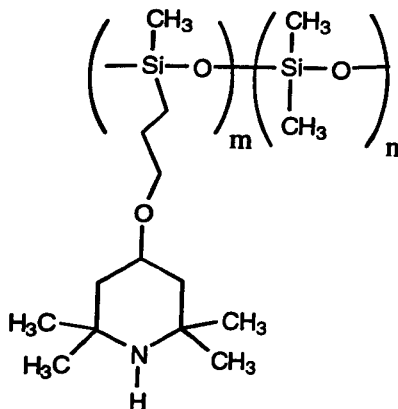
[c58] 58. A method of making a light bulb, comprising steps of providing an enclosure and coating said enclosure with a polyorganosiloxane composition containing a hindered amine light stabilizer.

[c59] 59. The method of claim 58, wherein said coating step comprises (i) spraying said composition onto said bulb, (ii) flowing said composition onto said bulb or (iii) dipping said bulb into said composition.

[c60] 60. The method of claim 58, wherein said composition is applied to the exterior of said bulb.

[c61] 61. The method of claim 58, wherein said composition is applied to the interior of said bulb.

[c62] 62. The method of claim 58, wherein said hindered amine light stabilizer is represented by the formula



where n is 0 or any integer, and m represents an integer greater than 3.

[c63] 63. The method of claim 62, wherein the methylsiloxane moiety forms a cyclic ring.

[c64] 64. The method of claim 63, wherein the methylsiloxane moiety forms a cyclic tetramer where $m=4$ and $n=0$ or forms an octamer where $m=8$ and $n=0$.

[c65] 65. The method of claim 60, wherein the methylsiloxane moiety forms a linear chain with trimethylsiloxane end groups.